

Composition of Functions Warm Up

1. a) If  $f(x)$  and  $g(x)$  are polynomial functions, use the two tables of values below to complete the table of values for  $f(g(x))$ .

$x$	$f(x)$
0	3
1	4
2	5
3	6
4	7

$x$	$g(x)$
-2	4
-1	1
0	0
1	1
2	4

$x$	$f(g(x))$
-2	7
-1	4
0	3
1	4
2	7

$y = x + 3$        $y = x^2$

b) Let  $h(x) = f(g(x))$ . Write a possible mathematical model for  $h(x)$ .

$= x^2 + 3$

2. a) Use the graph for the functions  $f(x)$  and  $g(x)$  below to graph  $y = f(g(x))$ .

$f(x)$        $Y$        $g(x)$        $Y$

2. a) Use the graph for the functions  $f(x)$  and  $g(x)$  below to graph  $y = f(g(x))$ .

$y = -3(x+2) - 3$   
 $= -3x - 9$

$y = x + 2$   
 $y = -3x - 3$

b) Let  $h(x) = f(g(x))$ . Write a mathematical model for  $h(x)$ .

$h(x) = -3x - 9$